

7. (Twice Amended) A method as set forth in claim 1, wherein the spraying the polymer-based material comprises one or more changes in process parameters, the process parameters selected from the group consisting of volume flow of the polymer-based material, viscosity of the polymer-based material or a component thereof, the electrical field (E), and the voltage level in the one or more treatment blocks (Li) of the mould (2).

8. (Twice Amended) An apparatus for manufacturing a thin-walled article, the apparatus comprising:

one or more reservoirs that contain a polymer-based material that comprises one or more components;

one or more pressurizing units to adjust the pressure of the polymer-based material;

a single-processing unit to electrically charge the polymer-based material and form a spray of electrically charged material onto a three-dimensional mould, which is not grounded; and

a control unit to adjust one or more process parameters.

22. (Amended) The apparatus of claim 8, wherein the one or more process parameters is selected from the group consisting of volume flow of the polymer-based material, viscosity of the manufacturing material or a component thereof, the electrical field, and voltage level in the one or more treatment blocks of the mould.

REMARKS

Reconsideration of claims 1, 3-10, 13, 15, 17-19, 21 and 22 is respectfully requested. Claims 1, 7, 8 and 22 are amended.

The rejection of claims 8 and 9 under 35 USC 103(a) as being unpatentable over WO 98/24747 (the "747 reference") is respectfully traversed with respect to the amended claims. As indicated in paragraph 5 of the final Office Action, the '747 reference describes the use of an "earthed (zero potential) rigid shaped former (mold)". Applicant is claiming a method of making a thin-walled article using a mould that is not earthed or grounded. Instead, the mould is set at some predetermined voltage. Accordingly, Applicant respectfully requests that the rejection be removed.

Likewise, the rejection of claims 1 and 4 under 35 USC 103(a) as being unpatentable over WO 98/24747 (the “747 reference”) in view of Miller (US 2,551,035) is respectfully traversed. As indicated in paragraph 5 of the final Office Action, the ‘747 reference describes the use of an “earthed (zero potential) rigid shaped former (mold). Applicant is claiming a method of making a thin-walled article using a mould that is not earthed or grounded. Because Miller fails to overcome this deficiency in the teaching of the ‘747 reference, Applicant respectfully requests that the rejection be removed.

The rejection of claims 6 and 18 under 35 USC 103(a) as being unpatentable over WO 98/24747 (the “747 reference”) in view of Miller (US 2,551,035) and in further view of Itoh (US 3,976,031) is respectfully traversed with respect to the amended claims.

The Examiner’s rejection of claim 6, as stated in paragraph 7 of the final Office Action, recognizes that neither the ‘747 patent nor Miller teach a “mold having at least two treatment blocks set at different voltage levels. To make up for this deficiency, the rejection cites Itoh, and states that Itoh teaches “a molding surface (2) set at different voltage levels forming three distinct regions (A, B, and C).” This is an incorrect understanding of the teachings of Itoh. For one thing, the molding surface in Itoh, like that of the ‘747 reference, is a grounded substrate (10) with $V=0$. Rather, it is the discharge electrode (2) in Itoh that can be set at different voltage levels. Therefore, the molding surface cannot be set at different voltage levels as the case with Applicant’s invention.

The teaching of Itoh is more accurately described later in paragraph 7, that is, “by controlling the voltage regions a much improved control of the thickness results”. See, Fig. 4b. However, the controlled voltage regions are not associated with the mold or substrate as claimed, but with the discharge electrode (2). Itoh provides a variable electric field in the deposition chamber to control deposition rates along the length of the substrate. At no time does Itoh teach or suggest varying the voltage applied to the mold. In fact, Itoh teaches away from Applicants’ invention because in all of the described embodiments the substrate (mold) is grounded, i.e., constant with $V=0$.

Because none of the three cited references teach or suggest that the substrate or mould can be set at voltage levels the rejection is improper. The mold in Applicant’s invention performs the function of the discharge electrode in Itoh as well as provides a molding surface.

This claim language makes clear that the different voltage levels are applied to a molding substrate and a not a secondary discharge electrode. Accordingly, Applicants respectfully request that the rejection be withdrawn.

Likewise, the rejections of claims 7 and 17 (paragraph 8), 5 (paragraph 9), 10 (paragraph 10), 15 (paragraph 11), 19 (paragraph 12), 21 (paragraph 13), 22 (paragraph 14) under 35 USC 103(a) as being unpatentable over WO 98/24747 (the “747 reference”) and one or more of the stated references is respectfully traversed with respect to the amended claims. For the same reasons, none of the cited references teach or suggest that the mould is “not grounded”, as claimed. Accordingly, Applicants respectfully request that the rejections be withdrawn.

The rejection of claims 1 and 3 in paragraph 15 under 35 USC 103(a) as being unpatentable over Miller in view of Goodridge is respectfully traversed with respect to the amended claims. Goodridge describes an apparatus that coats a substrate (form) with a thermoplastic resin material. The substrate is both heated and/or a voltage can be applied to the substrate. The voltage can be grounded or electrically charged, that is, $V \neq 0$. Once cured the formed article is removed from the form. However, neither Goodridge nor Miller teach or suggest that “the material (1) is a multi-component polymer-based material comprising ingredients (1a, 1b) that are individually heated by a heating unit and mixed together” prior to entering the spray processing unit. Accordingly, Applicants respectfully request that the rejections be withdrawn.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **“Version with markings to show changes made.”**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

The Director is hereby authorized to charge any fees, or credit any overpayment, associated with this communication, including any extension fees, to CBLH Deposit Account No. 22-0185.

May, 28, 2003

Respectfully submitted,

By 

Joseph Barrera

Registration No.: 44,522

CONNOLLY BOVE LODGE & HUTZ LLP

1990 M Street, N.W., Suite 800

Washington, DC 20036-3425

(202) 331-7111

(202) 293-6229 (Fax)

Attorneys for Applicants

Version With Markings to Show Changes Made**In the Claims:**

Claims 1, 7, 8 and 22 were amended as follows.

1. (Amended) A method for manufacturing an article, comprising:
providing a polymer-based material (1), wherein the material (1) is a multi-component polymer-based material comprising ingredients (1a, 1b) that are individually heated by a heating unit and mixed together;
spraying the polymer-based material in an electrically charged state into an electrical field (E) onto a three-dimensional[;
providing a] mould (2)[, wherein one or more positions of] the mould is not groundedset at an electrical potential;
contacting the electrically charged material to the mould] with a single-spray processing unit to form a coating on the mould, which is not grounded; and
removing the article from the mould (2) following sufficient curing of the coating.

7. (Twice Amended) A method as set forth in claim 1, wherein the spraying the polymer-based material comprises one or more changes in process parameters, the process parameters selected from the group consisting of volume flow of the polymer-based material, viscosity of the polymer-based material or a component thereof, the electrical field (E), and the voltage level in the one or more treatment blocks (Li) of the mould (2).

8. (Twice Amended) An apparatus for manufacturing a thin-walled article, the apparatus comprising:
one or more reservoirs that contain a polymer-based material that comprises one or more components;
one or more pressurizing units to adjust the pressure of the polymer-based material;
[a mould]
a [processing] single-processing unit to electrically charge the polymer-based material and form a spray of electrically charged material onto a three-dimensional mould, which is not grounded; and

a control unit to adjust one or more process parameters.

22. (Amended) The apparatus of claim 8, wherein the one or more process parameters is selected from the group consisting of volume flow of the polymer-based material, viscosity of the manufacturing material or a component thereof, the electrical field, and voltage level in the one or more treatment blocks of the mould [(2)].